

**UNIVERSITY OF SWAZILAND  
FACULTY OF EDUCATION  
DEPARTMENT OF CURRICULUM AND TEACHING  
MAIN EXAMINATION QUESTION PAPER: DECEMBER 2015**

**TITLE OF PAPER : CURRICULUM STUDIES IN BIOLOGY I**  
**COURSE CODE : CTE 527**  
**STUDENTS : PGCE**  
**TIME ALLOWED : THREE (3) HOURS**

**INSTRUCTIONS:** 1. This examination paper has five (5) questions. Question 1 is compulsory. Then answer any three (3) questions.  
2. Each question has a total of 25 points.

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR**

**Question 1 is compulsory.**

1. a) Scientific theories and experiments have an interactive and interdependent relationship. Illustrate this relationship, providing examples. [5]
- b) Holton and Roller agree with Medawar regarding how scientific investigations occur and how the findings are subsequently reported. Explain what this means. [5]
- c) Provide 3 differences between assessment and evaluation. [6]
- d) Compare and contrast the following: [4]
  - i) Convergent and divergent questions
  - ii) Inquiry and discovery learning
- e) List 3 advantages and 2 disadvantages associated with the use of behavioural objectives. [5]

**Choose any 3 questions below.**

2. a) Discuss the views of Karl Popper, Thomas Kuhn and Peter Medawar about the criterion of demarcation in science, that is, how science is distinct from non-science or pseudo-science. [12]
  - b) The discovery of *Homo naledi* in caves outside Johannesburg is significant in terms of providing answers to the theory of human evolution (**explaining our past and present**), and indicating if there are any species between *Homo naledi* and *Homo sapiens* (**predicting**). Discuss the role of an existing paradigm or theory (*Homo naledi*) in scientific research. [6]
  - c) Using the Meiotic Model and Simple Dominance Model, show how scientific models
    - i) are a set of ideas used to describe a natural process
    - ii) are used to explain and predict natural phenomena
    - iii) are constituted by empirical or theoretical *objects* and the *processes* in which they participate[7]
3. a) According to the National Science Education Standards, science students must be exposed to and directly experience *5 essential features of inquiry*. Provide and discuss any 3 essential features of inquiry. [15]
  - b) In Swaziland, learners engage in practical activities but not much scientific inquiry is involved. Critique this statement using the notions of open versus guided inquiry and full versus partial inquiry. [10]

4. a) Questioning, as a teaching and learning method and strategy, is important in science classrooms because it can be used with other teaching methods to actively engage learners with conceptually and procedurally. Explain how you would use this method in the following: **[3x4]**
- i) Group discussion
  - ii) Demonstration
  - iii) Laboratory exercises
- b) Ms Langa, a form 2 science teacher has a daily routine. First, she goes over any homework from previous lessons. Then she introduces the new topic by explaining the concepts to the learners. This is followed by giving the class notes to copy in their notebooks. Then she gives the learners classwork which she moves around checking followed by homework. Occasionally, learners are asked to read passages from the text and very rarely she will perform a demonstration, sometimes asking Vusi to assist her. Her classes are quiet and occasionally show some interest during the demonstrations.
- i) Discuss how this approach is not likely to lead to a conceptual change **[7]**
  - ii) Provide 3 ways in which you would motivate the class to be actively engaged in the lessons. **[6]**
5. a) Explain how you would assess a biology practical activity using a variety of assessment strategies. Discuss the value of the strategies employed. **[5]**
- b) Research findings indicate that formative assessment results in improved achievement levels of learners. Discuss the implications of these findings for teaching. **[10]**